Amendments to the Claims

The following Listing of Claims replaces all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (original): A device, comprising:

an input microstrip line and an output microstrip line each respectively having a length less than one-quarter of a target wavelength corresponding to a target operating frequency, a characteristic impedance greater than a target source impedance, and a series inductance at the target operating frequency; and

an electro-absorption modulator having a signal electrode with a length less than one-quarter of the target wavelength, a characteristic impedance less than the target source impedance, and a shunt capacitance at the target operating frequency;

wherein the input microstrip line, output microstrip line, and the electro-absorption modulator are incorporated into a distributed low-pass filter transmission line circuit having a characteristic impedance substantially matching the target source impedance at the target operating frequency.

Claim 2 (original): The device of claim 1, wherein the input microstrip line is connected between an input shunt capacitance and the electro-absorption modulator and the output microstrip line is connected between an output shunt capacitance and the electro-absorption modulator.

Claim 3 (currently amended): The device of claim 2, wherein the series inductances of the input and output microstrip lines, the input and output shunt capacitances, and the shunt capacitance of the signal electrode are selected to match ~~enable~~ the distributed low-pass filter transmission line circuit to ~~substantially match~~ the target source impedance at the target operating frequency.

Claim 4 (original): The device claim 2, wherein the output shunt capacitance comprises an output bonding pad connected in parallel with a shunt capacitor.

Claim 5 (original): The device of claim 1, wherein the input microstrip line has a series inductance providing peaking of the characteristic impedance of the low-pass filter transmission line circuit near the target operating frequency.

Claim 6 (original): The device of claim 1, wherein the signal electrode of the electro-absorption modulator has a distributed traveling wave structure comprising multiple spaced-apart signal electrode segments connected in series, with each pair of signal electrode segments being connected by a respective microstrip line.

Claim 7 (original): The device of claim 6, wherein each signal electrode segment has a length less than one-quarter of the target wavelength, a characteristic impedance less than a target source impedance, and a shunt capacitance at the target operating frequency.

Claim 8 (original): The device of claim 6, wherein each microstrip line connecting the signal electrode segments has a length less than one-quarter of the target wavelength, a characteristic impedance greater than a target source impedance, and a series inductance at the target operating frequency.

Claim 9 (original): The device of claim 6, wherein the signal electrode segments are formed of respective electrically conducting regions of a layer electrically isolated from each other by electrically insulating regions of the layer.

Claim 10 (original): The device of claim 1, wherein the target source impedance is 50 ohms.

Claim 11 (original): The device of claim 1, wherein each microstrip line includes an electrically insulating layer disposed between electrically conducting layers.

Claim 12 (original): The device of claim 1, wherein the signal electrode is formed on a ridge structure.

Claim 13 (original): A device, comprising an electro-absorption modulator having a signal electrode with a distributed traveling wave structure comprising multiple spaced-apart signal electrode segments connected in series with each pair of signal electrode segments connected by a respective microstrip line.

Claim 14 (original): The device of claim 13, wherein each microstrip line connecting signal electrode segments has a length less than one-quarter of a target wavelength corresponding to a target operating frequency, a characteristic impedance greater than a target source impedance, and a series inductance at the target operating frequency.

Claim 15 (original): The device of claim 13, wherein each signal electrode segment has a length less than one-quarter of a target wavelength corresponding to a target operating frequency, a characteristic impedance less than a target source impedance, and a shunt capacitance at the target operating frequency.

Claim 16 (original): The device of claim 15, further comprising an input microstrip line and an output microstrip line each respectively having a length less than one-quarter of the target wavelength, a characteristic impedance greater than the target source impedance, and a series inductance at the target operating frequency.

Claim 17 (original): The device of claim 16, wherein the input microstrip line, output, microstrip line, and the electro-absorption modulator are incorporated into a distributed low-pass filter transmission line circuit having a characteristic impedance substantially matching the target source impedance at the target operating frequency.

Claim 18 (original): The device of claim 16, wherein the input microstrip line is connected between an input shunt capacitance and the electro-absorption modulator and the output microstrip line is connected between an output shunt capacitance and the electro-absorption modulator.

Claim 19 (currently amended): The device of claim 18, wherein the series inductances of the input and output microstrip lines, the input and output shunt capacitances,

and the shunt capacitance of the signal electrode are selected to match ~~enable~~ the distributed low-pass filter transmission line circuit to ~~substantially match~~ the target source impedance at the target operating frequency.

Claim 20 (original): The device claim 18, wherein the output shunt capacitance comprises an output bonding pad connected in parallel with a shunt capacitor.